

# PATENT ABSTRACTS OF JAPAN

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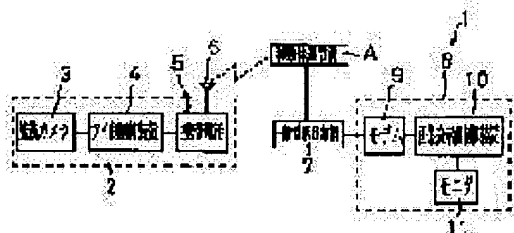
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## (54) FISHERY MONITORING SYSTEM

### (57)Abstract:

**PROBLEM TO BE SOLVED:** To obtain a simple and inexpensive fishery monitoring system where a fishing bank, a fixed net, and a fish preserve or the like are monitored even at a remote place or at an isolated area by utilizing information transmission through a telephone set and a school of fish and a catch of fish are discriminated by catching a sharp underwater image.

**SOLUTION:** A monitoring buoy 2 has a monitoring camera 3 that photographs an object, a buoy controller 4 that converts an underwater image photographed by the camera 3 into an image signal, and a portable telephone set 5 that sends the image signal to a general telephone channel 7 as a radio signal; an image display side has an image display controller 10 that converts the image signal received through the telephone channel 7 into a display image and a monitor 11 for image display. In this fishery monitoring system, information transmission by a telephone set is utilized to monitor a fishing bank, a fixed net, and a fish preserve or the like, and a school of fish and a catch of fish are discriminated by catching a sharp underwater image simply even at a remote place or an isolated area with a simple device at a low cost.



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CLAIMS

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[Claim(s)]

[Claim 1] While transmitting the underwater image of the supervised object caught to the monitor buoy side installed the water surface possible [ suspension ] to an image display side with the means of signal transduction by the telephone In the monitoring system for fishings which supervises a supervised object by displaying the underwater image which received in said image display side While said monitor buoy has the surveillance camera which photos supervised object, the buoy side control unit which changes into a picture signal the underwater image which this surveillance camera photos, and the cellular phone which transmits this picture signal to the general telephone line o radio Monitoring system for fishings characterized by having the image display side control unit which changes into display image said picture signal received through said telephone line, and a monitor for image display in an image display side.

[Claim 2] While transmitting the underwater image of the supervised object caught to the monitor buoy side installed the water surface possible [ suspension ] to an image display side with the means of signal transduction by satellite communication and the telephone In the monitoring system for fishings which supervises a supervised object by displaying the underwater image which received in said image display side While said monitor buoy has a surveillan camera, the buoy side control device which changes into a picture signal the underwater image which this surveillanc camera photos, and the satellite communication modem which transmits this picture signal to a satellite circuit Monitoring system for fishings characterized by having the image display side control unit which changes into a display image said picture signal received through a satellite circuit and the telephone line, and a monitor for image display in an image display side.

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DETAILED DESCRIPTION

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[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to the monitoring system for fishings, and relates to the monitoring system for fishings to which the monitor of a shoal of fish is widely made as for regionality in energy saving with a simple facility by performing the monitor of the shoal of fish in a rocky place under the water where fish tend to gather, a fixed net, a live-box, etc. especially with the clear image transmitted through the means of signal transduction by the telephone.

[0002]

[Description of the Prior Art] Various monitoring system for fishings has been used for the monitor of the shoal of fish in a live-box, a fixed net, etc. from the former.

[0003] Drawing 4 (a), (b), and drawing 5 are the schematic diagrams having shown an example of such conventional monitoring system for fishings. Drawing 4 (a) is an example of the monitoring system 16 which grasps the location of the body 14 on a sea surface (buoy) by the radio signal, and carries out position representation of the LONG LAT etc on the screen 15 describing a latitude and a longitude line. That is, this monitoring system 16 displays that location on the screen 15 which receives the signal sent from the antenna 18 of the buoy 14 carrying a walkie-talkie 17, decodes that bearing, the LAT, and LONG, and is shown in drawing 4 (b).

[0004] Moreover, drawing 5 is an example of the monitoring system 20 which carries out image display to the monitor which photoed living things, such as an underwater fish, with the underwater camera 19, and installed the image in the interior of a ship. That is, this monitoring system 20 sinks underwater said underwater camera 19 which went by ship 21 to near [ in which the water medium maturing object used as the object of a monitor is present ] the water surface and was connected to the long cable 22, and photos a water medium maturing object.

[0005] It was possible to have supervised a shoal of fish with such monitoring system 16 and 20 to some extent.

[0006]

[Problem(s) to be Solved by the Invention] However, since it went out to the monitor location by ship 21 which equipped the interior of a ship with the underwater camera 19 as mentioned above and the cable was performing the monitor of a shoal of fish through said cable 22 when the monitor of a shoal of fish was performed by catching a clear image depending on the conventional monitoring system 20, many equipment was needed in the monitor and it had also taken time and effort. On the other hand, in the case of the monitoring system 16 which uses wireless as means of communications, as mentioned above, even if it could judge the location and number of buoys 14 on a sea surface by the position representation to a screen 15 top, a shoal of fish was not able to be regarded as a clear image. Moreover, the conventional radio, there was also much regulation on Wireless Telegraph Law.

[0007] This invention was made in view of such a trouble, even if it can supervise a rocky place under the water where fish tend to gather, a fixed net, a live-box, etc. using transfer of the information by the telephone, can perform the judgment of a shoal of fish and a fish catch by catching a clear underwater image and is in a remote place or a remote district, it can be supervised easily, is easy to equip and aims them at cost offering the cheap monitoring system for fishings.

[0008]

[Means for Solving the Problem] The description of the monitoring system for fishings applied to claim 1 of this invention in order to attain said purpose While transmitting the underwater image of the supervised object caught to monitor buoy side installed in the water surface possible [ suspension ] to an image display side with the means of signal transduction by the telephone In the monitoring system for fishings which supervises a supervised object by displaying the underwater image which received in said image display side While said monitor buoy has the surveillance camera which photos a supervised object, the buoy side control unit which changes into a picture signal the underwater image which this surveillance camera photos, and the cellular phone which transmits this picture signal to the general telephone line on radio It is in the point of having the image display side control unit which changes in

a display image said picture signal received through said telephone line, and a monitor for image display in an image display side.

[0009] And it becomes possible by having adopted such a configuration to supervise a shoal of fish etc. by the clear image by the surveillance camera.

[0010] Moreover, the description of the monitoring system for fishings applied to claim 2 of this invention in order to attain said purpose. While transmitting the underwater image of the supervised object caught to the monitor buoy side installed in the water surface possible [ suspension ] to an image display side with the means of signal transduction by satellite communication and the telephone. In the monitoring system for fishings which supervises a supervised object by displaying the underwater image which received in said image display side. While said monitor buoy has a surveillance camera, the buoy side control device which changes into a picture signal the underwater image which the surveillance camera photos, and the satellite communication modem which transmits this picture signal to a satellite circuit. It is in the point of having the image display side control unit which changes into a display image said picture signal received through a satellite circuit and the telephone line, and a monitor for image display in an image display side.

[0011] And it becomes possible by having adopted such a configuration to supervise the shoal of fish in a remote place more. <BR> [0012]

[Embodiment of the Invention] Hereafter, the 1st operation gestalt of the monitoring system for fishings concerning this invention is explained with reference to drawing 1 thru/or drawing 3.

[0013] Drawing 1 is the schematic diagram of the monitor buoy 2 of the monitoring system 1 for fishings concerning this operation gestalt. Moreover, the inside of the broken line on the left-hand side of [ space ] drawing 2 is the block diagram showing the system by the side of the monitor buoy 2 of said monitoring system 1 for fishings.

[0014] Said monitoring system 1 for fishings has said monitor buoy 2 whose suspension on a sea surface was enabled.

[0015] Moreover, the surveillance camera 3 for carrying out for photoing the underwater image of the supervised object which consists of a shoal of fish in the rocky place under the water where fish tend to gather in the sea, a fixed net, a live-box, etc. as a clear image is built in said monitor buoy 2.

[0016] The buoy side control unit 4 which changes into a picture signal the image which this surveillance camera 3 caught is connected to said surveillance camera 3.

[0017] Furthermore, the cellular phone 5 shown in drawing is connected to said buoy side control device 4, and it transmits by the signal transduction by the telephone to the mobile communication network A from the antenna 6 which shows the picture signal changed by said buoy side control device 4 to drawing 1.

[0018] And the signal transmitted to the mobile communication network A is transmitted to the image display side la mentioned through the common telephone network 7 (PHS etc. is included) as shown in drawing 2. As compared with the means of communications by the conventional walkie-talkie, the means of communications by said cellular phone also has little regulation on Wireless Telegraph Law, and can demonstrate effective effectiveness in a remote place or remote district as compared with the means of communications by the cable.

[0019] In addition, although the image transmitted through said general telephone network 7 is the static image of a color, said buoy side control unit 4 can adjust the transmission speed of an image by the command of the image display side control unit 10 mentioned later.

[0020] Moreover, the dc-battery 7 for holding said cellular phone 5 possible [ a communication link ] is built in said monitor buoy 2. Next, the inside of the broken line on the right-hand side of [ space ] drawing 2 is the block diagram showing the image display side system 8 for displaying the shoal of fish which the surveillance camera 3 of said monitor buoy 2 caught as a clear image.

[0021] Said image display system 8 has the modem 9 connected to said general telephone network 7, and receives the picture signal from said monitor buoy 2.

[0022] Moreover, the image display side control unit 10 for changing into a display image the picture signal which the modem 9 received is connected to said modem 9.

[0023] Furthermore, the monitor 11 for displaying the changed image is connected to said image display side control unit 10. The shoal of fish caught with said monitor buoy 2 in the remote place by this is displayed with the static image of a clear color. Moreover, said image display side control device 10 can order now said buoy side control device 4 transmission of an image, accommodation of transmission speed, etc. through the common telephone network 7. And the display period of an image can be chosen now from the display mode of three kinds of images of the fast mode to which an image is sent frequently a short period, the medium-speed mode sent a period a little longer than said fast mode, and the slow mode sent a long period by making accommodation of the transmission speed of said image.

[0024] Moreover, as for said image display side control device 10, it is possible to make connection of the communication link with said monitor buoy 2 side and cutting perform to said modem 9.

[0025] Next, an operation of the operation gestalt of this invention is explained.

[0026] This operation gestalt is used mainly for the judgment of the monitor of the shoal of fish in a fixed net, a culture

network, a live-box, etc., a fish stock, and a fish catch.

[0027] First, said monitor buoy 2 is installed in the location of a request of a sea surface.

[0028] And the communication link by the common telephone network 7 is connected to said image display side control unit 10 by the side of image display.

[0029] Next, said image display side control unit 10 issues a command so that underwater images, such as a shoal of fish which the surveillance camera 3 of said monitor buoy 2 caught through the signal transduction from the mobile communication network A shown in said general telephone network 7 and drawing 2 to said buoy side control unit 4 the side of the monitor buoy 2, may be made to transmit.

[0030] In addition, it is possible in this case to order by choosing the transmission mode of an image from three kind fast mode, medium-speed mode, and a slow mode.

[0031] And said buoy side control device 4 which received the command of said image display side control device 1 changes into a picture signal the image which said surveillance camera 3 caught, and a picture signal is made to send with said cellular phone 5 connected to this buoy side control device 4. And after the signal sent from said cellular phone 5 is transmitted to the mobile communication network A shown in drawing 2, it is transmitted to an image display side through the common telephone network 7.

[0032] And through a modem 9, the picture signal transmitted to the image display side is changed into a display image by the account image display side control unit 10 of back to front [ the ], and is displayed on a monitor 11 as a static image of a clear color by it, for example.

[0033] Next, the 2nd operation gestalt of this invention is explained with reference to drawing 3.

[0034] Drawing 3 is the system chart showing the 2nd operation gestalt 12 of the monitoring system for fishings concerning this invention.

[0035] This operation gestalt 12 is replaced with said cellular phone 5 in the monitor buoy 2, and has the modem 13 satellite communication. That is, the modem 13 for said flank guard star communication link is transmitted to an image display side by connecting with said buoy side control device 4 through the satellite mobile communication network which shows the picture signal changed by this buoy side control device 4 to drawing 3 through an antenna 6, and the common telephone network 7. And like said 1st operation gestalt, with said image display side control unit 10, a picture signal is changed and image display is carried out to an image display side on a monitor 11.

[0036] In this operation gestalt 12, since satellite communication is used and the monitor of the shoal of fish in a further remote remote district etc. is attained rather than said 1st operation gestalt, it is what was more excellent in its area nature. Moreover, in the 2nd operation gestalt, the satellite mobile communication network B and the common telephone network 7 perform command of the picture transmission to said buoy side control device 4 by said image display side control device 10, and transmission of the picture signal by said image display side control device 10. In this case, it is possible to supervise a shoal of fish in a remoter remote district. Therefore, according to each operation gestalt of this invention, it becomes possible to make the image of the shoal of fish made to photo with said surveillance camera 3 also in a remote place transmit as a picture signal through a cellular phone 5 or satellite communication, and the common telephone network 7, and to display it as a clear color picture.

[0037] In addition, it is not limited to the thing of the gestalt of said operation, and this invention can be changed variously if needed.

[0038]

[Effect of the Invention] According to the monitoring system for fishings applied to this invention as stated above, using transfer of the information by the telephone, a rocky place under the water where fish tend to gather, a fixed net a live-box, etc. can be supervised, and the judgment of a shoal of fish and a fish catch can be performed by catching clear underwater image, even if it is in a remote place or a remote district, it can supervise easily, and equipment is a easy and the effectiveness of cost also being able to offer the cheap monitoring system for fishings is done so.

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PRIOR ART

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DESCRIPTION OF DRAWINGS

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[Brief Description of the Drawings]

[Drawing 1] Drawing showing the monitor buoy operation gestalt of the monitoring system for fishings concerning t invention

[Drawing 2] The block diagram showing the 1st operation gestalt of the monitoring system for fishings concerning th invention

[Drawing 3] The block diagram showing the 2nd operation gestalt of the monitoring system for fishings concerning invention

[Drawing 4] (a) Drawing showing an example of the image display of the monitoring system by the wireless of the block diagram (b) former which shows an example of the monitoring system by the conventional wireless

[Drawing 5] Drawing showing an example of the monitoring system by the conventional cable

[Description of Notations]

1 1st Operation Gestalt of Monitoring System for Fishings

2 Monitor Buoy

3 Surveillance Camera

4 Buoy Side Control Unit

5 Cellular Phone

6 Antenna

7 General Telephone Network

8 Image Display System

9 Modem

10 Image Display Side Control Unit

11 Monitor

12 2nd Operation Gestalt of Monitoring System for Fishings

13 Modem for Satellite Communication

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[Translation done.]



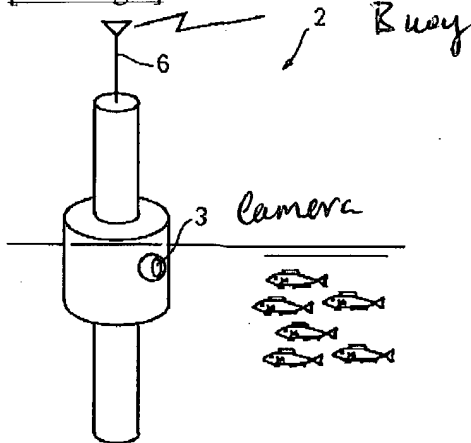
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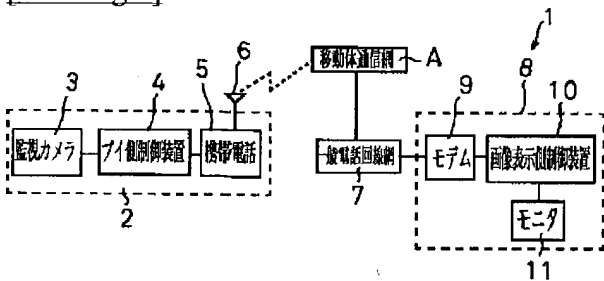
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DRAWINGS

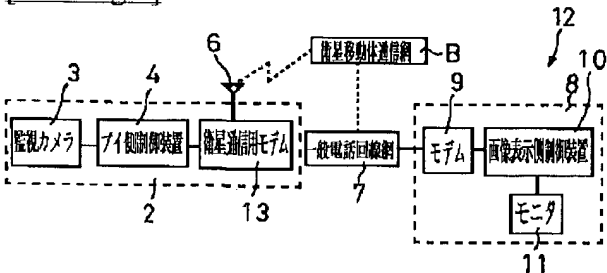
[Drawing 1]



[Drawing 2]



[Drawing 3]



[Drawing 4]

4: buoy control unit

3: camera

2: monitor buoy

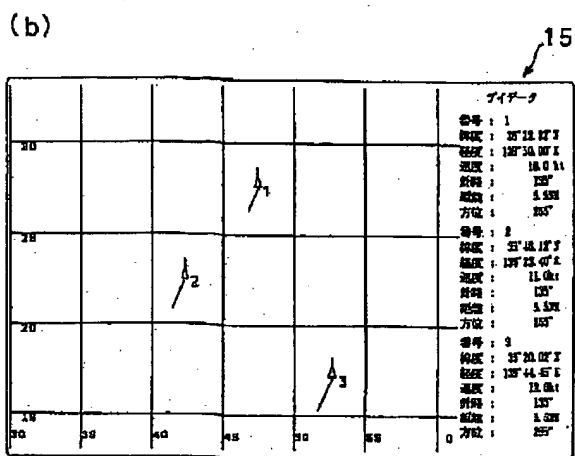
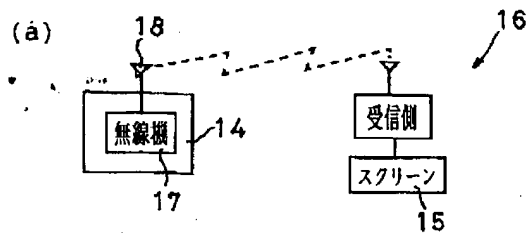
8: image display

9: modem

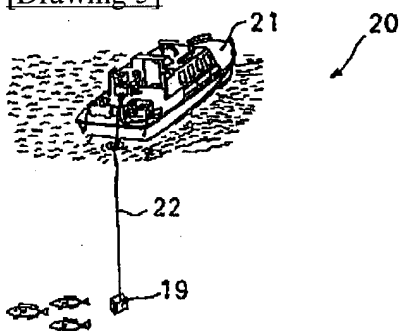
11: monitor

7: telephone network

13: modem for satellite communication



[Drawing 5]



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